

CLIMATE CHANGE READINESS IN THE SAN DIEGO REGION

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Resolution R9-2018-0051

Addressing Threats to Beneficial Uses from Climate Change

- ▶ Limit greenhouse gas emissions from our operations
 - ▶ Consider climate change in all our actions
 - ▶ Projects compatible with climate change scenarios
 - ▶ Partnerships
 - ▶ Advocate for solutions that protect beneficial uses
 - ▶ Implement plan for our top climate change goals
 - ▶ Short-mid-long term outcomes
 - ▶ Integrate goals into program work plans
- 
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Climate Change Readiness Project 2018

- Review laws, science, policies, and plans
- Develop a vision
- Identify priorities
- Board Resolution
- Develop implementation plan

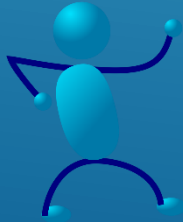
Ben



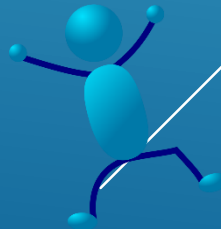
David B.



Tom



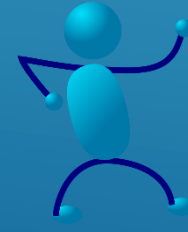
Kelly D.



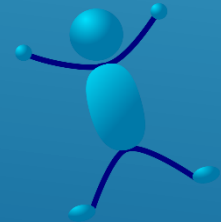
Michelle



Jeremy



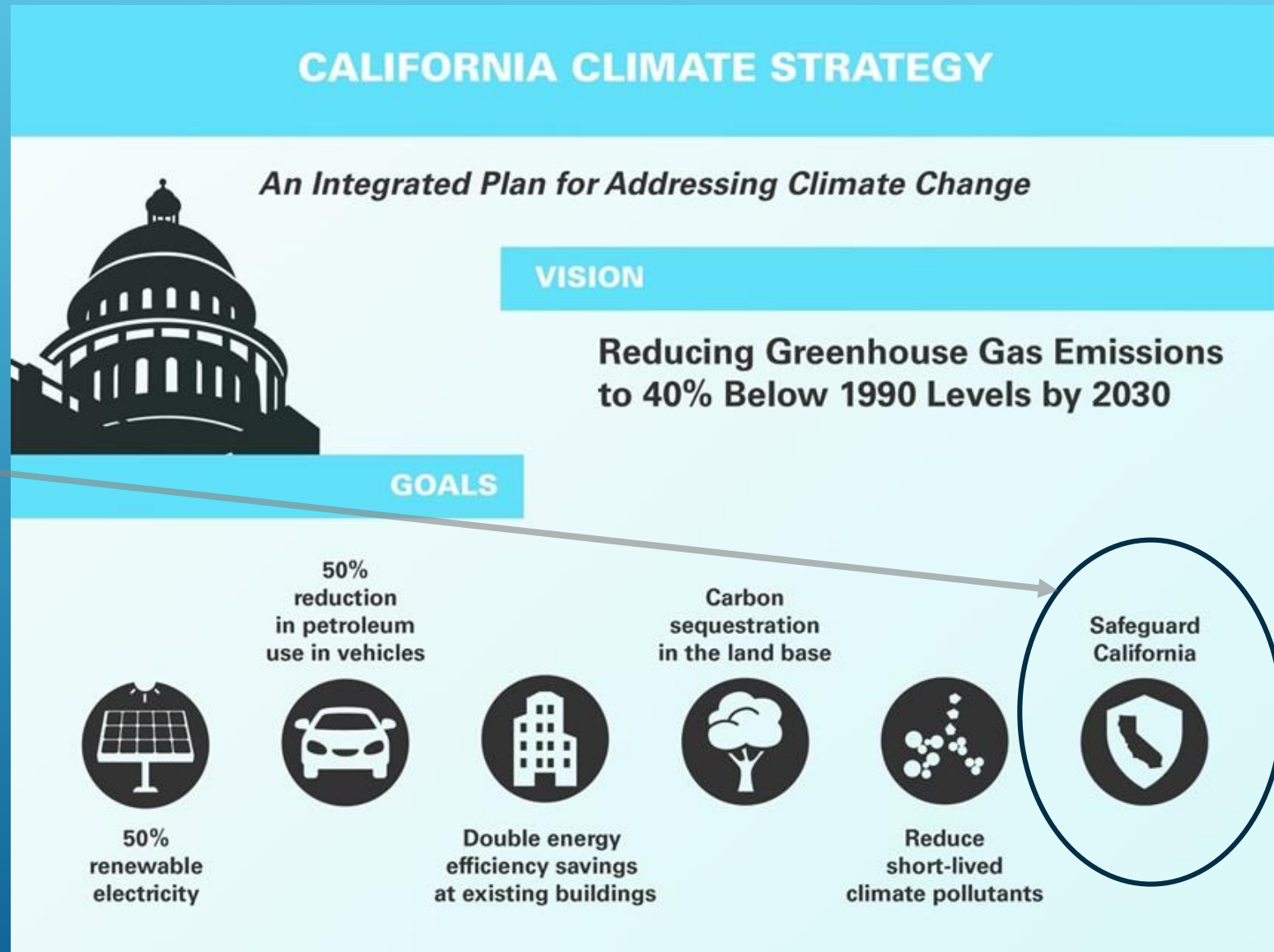
Jimmy



CALIFORNIA HAS A LOT OF SCIENCE, LAWS, POLICIES, AND PLANS

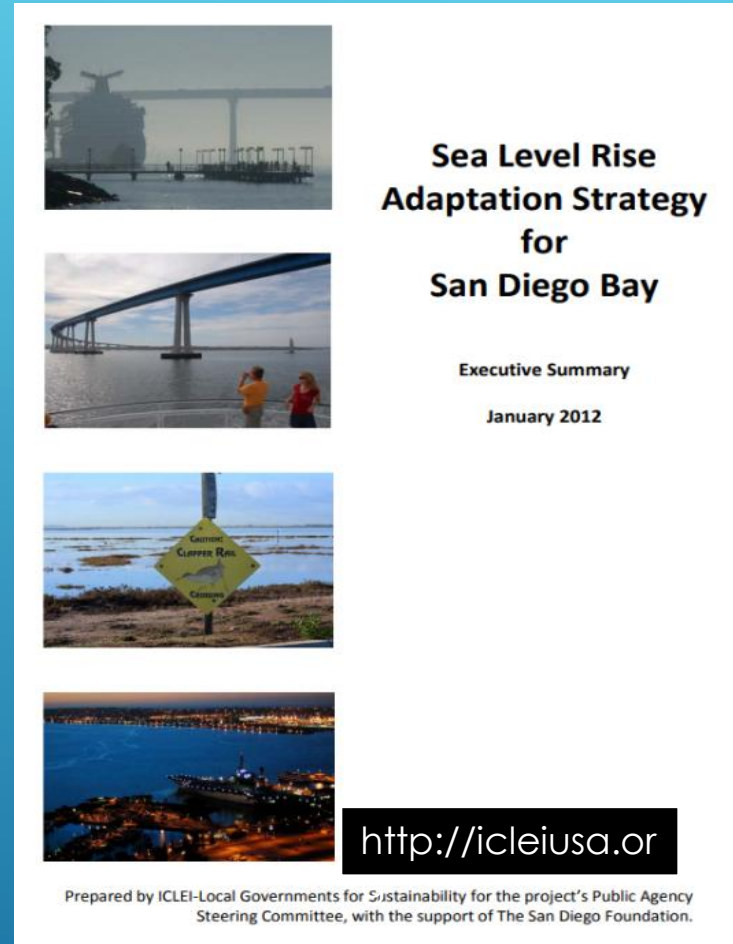
- ▶ Started with greenhouse gas reduction
- ▶ Moving quickly now to adaptation planning

Learn about it all at:
<http://climatechange.ca.gov>



THE SAN DIEGO REGION IS CLIMATE-BUSY

- Local climate action plans
- Regional collaboration
- World-class climate research



SAN DIEGO COUNTY ECOSYSTEMS:

The Ecological Impacts of Climate Change on a Biodiversity Hotspot

<http://www.climatealliance.org/>

RECLAMATION

Managing Water in the West

Technical Memorandum No. 86-68210-2016-08

San Diego Watershed Basin Study

Task 2.2 – Climate Change Impacts and Hydrologic Modeling



<https://www.usbr.gov/lc/socal/>

[basinstudies/SDBasin](https://www.usbr.gov/lc/socal/basinstudies/SDBasin)

Climate Change has many effects on water quality

Shoreline erosion

Ocean acidification

More extreme heat days

Intertidal habitat loss

Increased toxic bioavailability

Warmer Ocean

"Increasing greenhouse gases will have a significant impact on the ocean during the 21st century." – NOAA

<https://www.esrl.noaa.gov/psd/news/announcements/2018/020818.html>

Seawater intrusion

More droughts

More wildfires

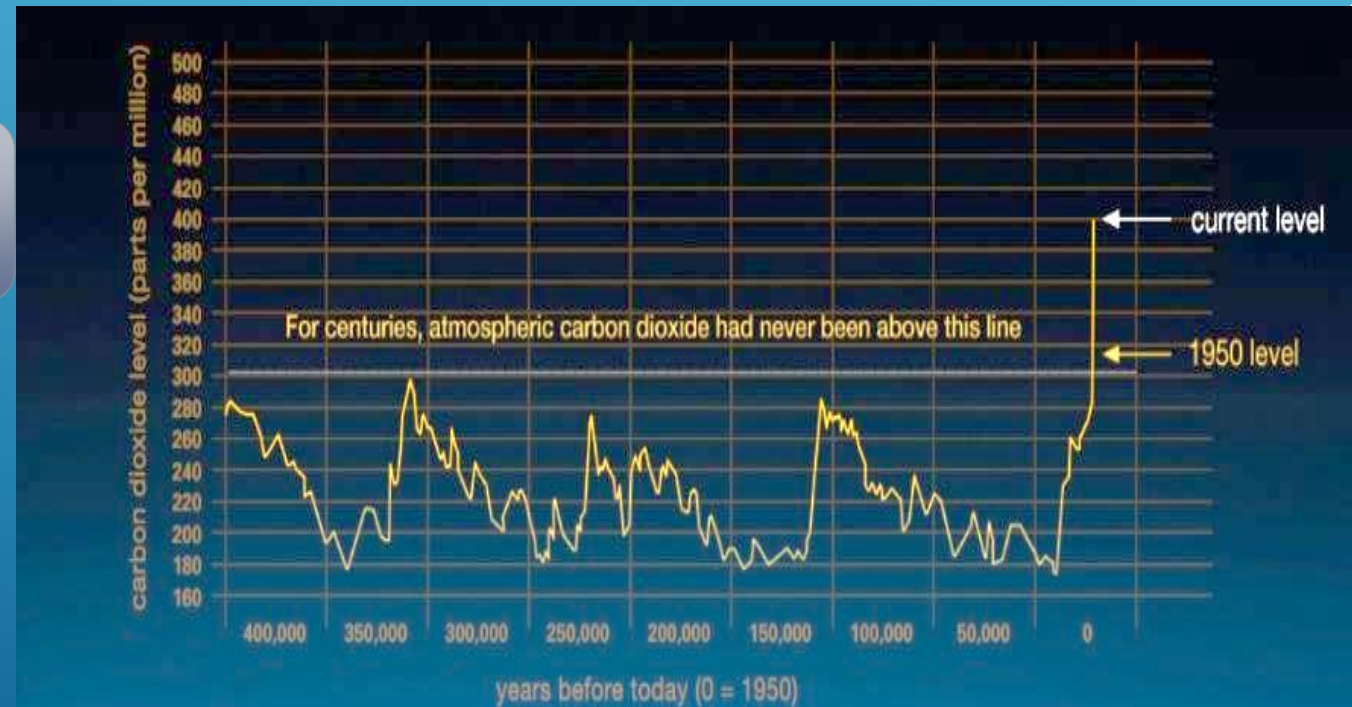
More flooding

More intense rainstorms

Less reliable imported water

More algal blooms

And ???



May 9, 2018

<https://climate.nasa.gov/evi>

THERE ARE ALSO INDIRECT THREATS FROM LOCAL RESPONSES TO CLIMATE CHANGE

- Accommodating higher tidal surges by armoring coastlines.
- Managing larger volumes of storm water by modifying stream channels.
- Relying on natural attenuation of soil contamination where exposed to sea level rise and/or rising groundwater.

E&E NEWS

SEARCH:

[<< Back to E&E News index page.](#)

CALIFORNIA

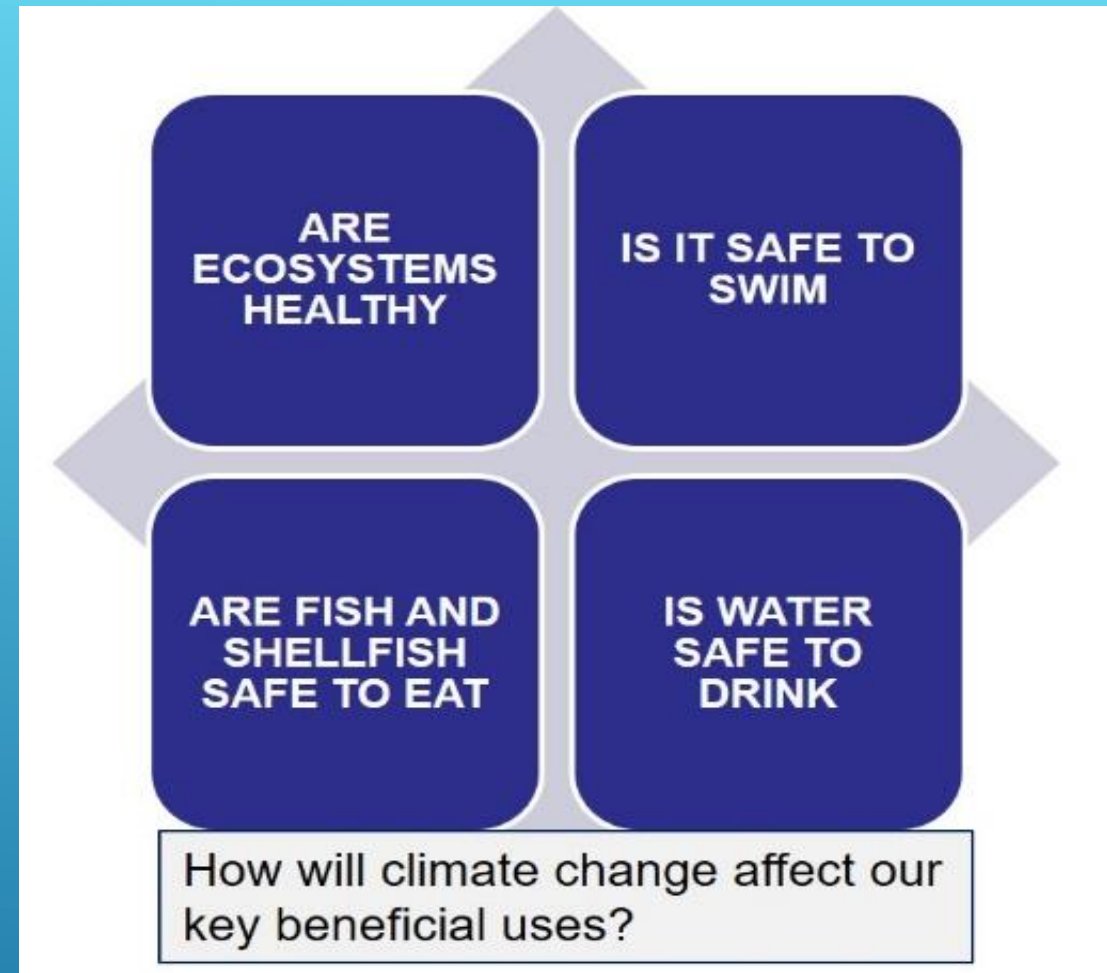
Beach disappearing in city where sea walls dominate

Anne C. Mulkern, E&E News reporter • Climatewire: Monday, July 31, 2017



Water hits sea walls in Solana Beach, Calif., leaving the beach free of dry sand a few hours before high tide. Jim Jaffee/Special to E&E News

Vision: Actions of the San Diego Water Board are preserving, enhancing, and restoring water quality for future generations that will live with the likely effects of climate change

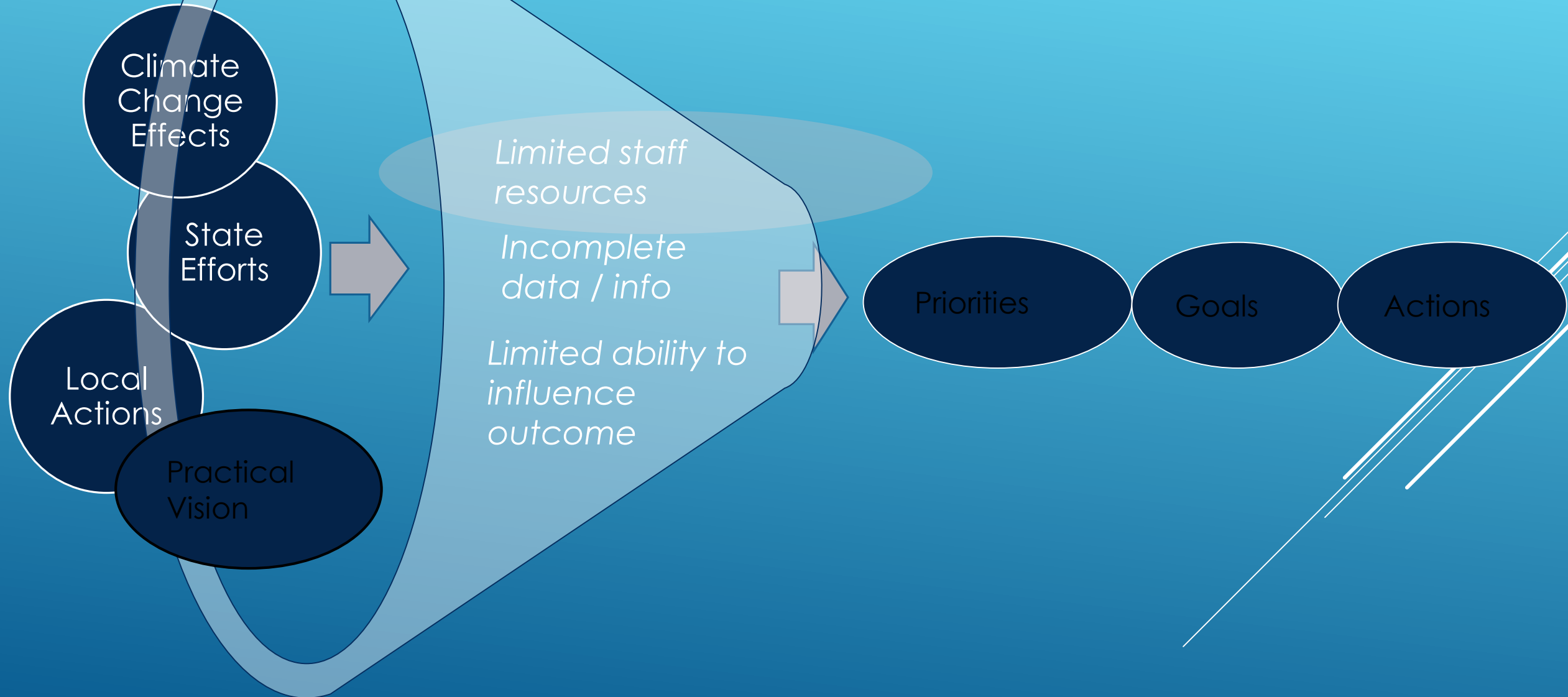


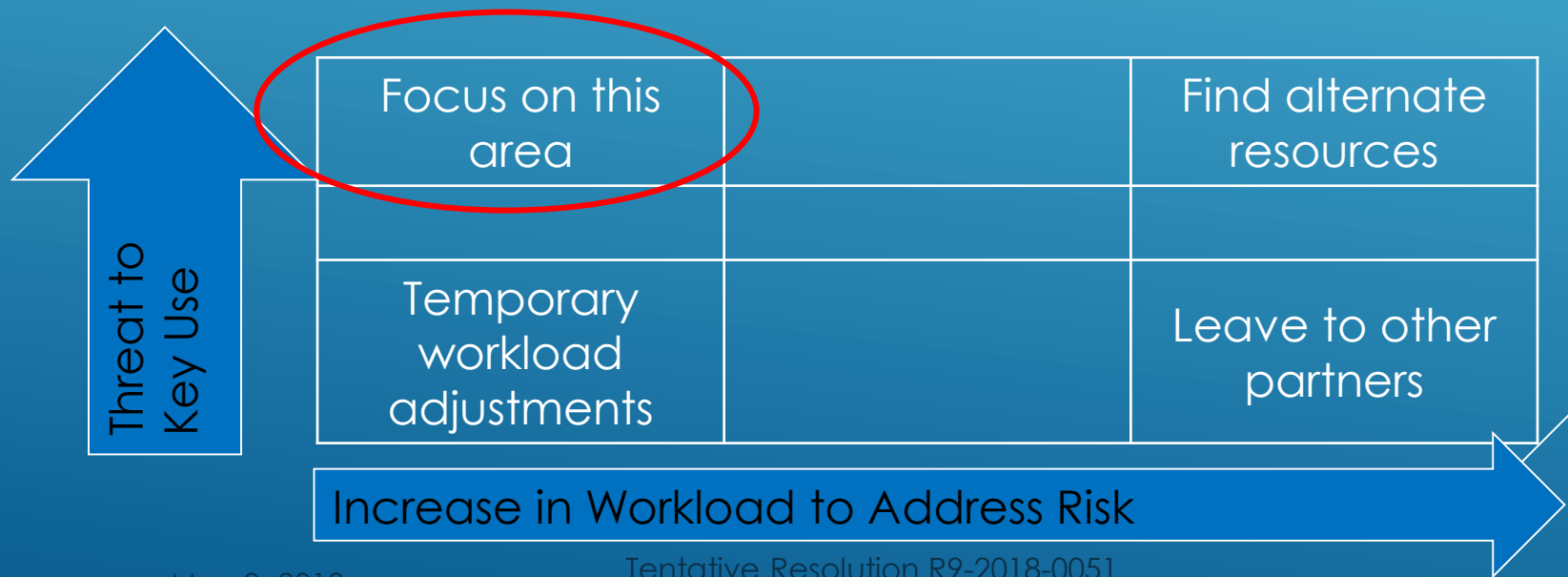
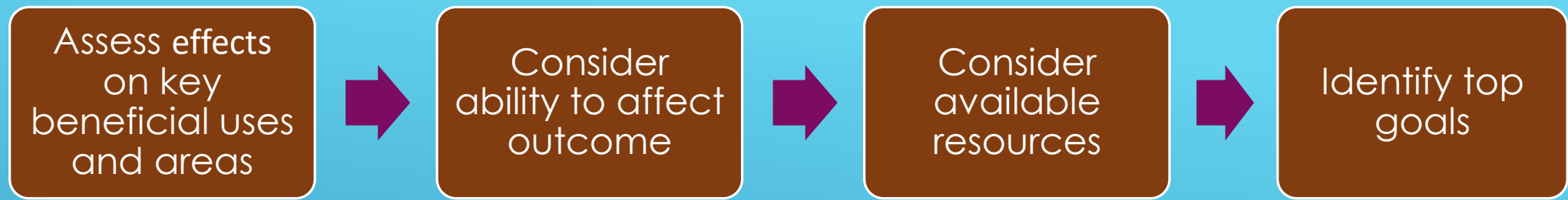
CLIMATE CHANGE READINESS PROJECT 2016-2018

Context

Constraints

Decisions





USING KEY BENEFICIAL USES TO DETERMINE PRIORITIES

Key Beneficial Use	Key Areas for the Use	TOP GOALS RELATED TO CLIMATE CHANGE
Safe to Drink	1 st Rank: Drinking water supply reservoirs 2 nd Rank: Groundwater	<ul style="list-style-type: none"> • Increase local water supply via water recycling • Capture storm water without harming in-stream ecosystems
Safe to Eat	1 st : Ocean 2 nd : Bays 3 rd : Harbor, lagoons, estuaries	<ul style="list-style-type: none"> • Address bioaccumulation and toxin threats • Protect and increase refuges for intertidal ecosystems
Safe to Swim	1 st : Ocean, bays 2 nd : Harbors 3 rd : Lagoons, estuaries, streams, stream mouths	<ul style="list-style-type: none"> • Protect beaches from harmful shoreline hardening • Identify and remedy vulnerable wastewater infrastructure
Healthy Ecosystems	1 st : Ocean, bays, lagoons, estuaries, streams 2 nd : Stream mouths 3 rd : Ponds, harbors	<ul style="list-style-type: none"> • Protect and increase intertidal ecosystems • Protect and restore natural flow regimes

USING PRACTICAL VISION STRATEGIES FOR ACTION PLANS

PV Strategy	Example Priority Climate Change Goal	Near-term Outcome / Action
Incorporating Latest Science and Technology	Healthy Ecosystems: Protect and restore natural flow regimes	Train staff on ecohydrology research
	Safe to Swim: Identify and remedy vulnerable wastewater infrastructure	Explore next-generation technologies
Collaboration & Communication	Safe to Swim: Protect beaches from harmful shoreline hardening	Assign sea level rise liaison to agencies and researchers
	Safe to Drink: Capture storm water without harming in-stream ecosystems	Work with Orange County applicants to eliminate or minimize long-term harm
	Safe to Eat: Address bioaccumulation and toxins threats	Educate public on intertidal Bay species bioaccumulation
Aligning Effort to Priorities	Safe to Swim: Identify and remedy vulnerable wastewater infrastructure	Ensure WDRs for collection systems address vulnerability



IMPLEMENTATION PLAN 2018-2019

CLIMATE CHANGE READINESS ACTIONS

PLANNING:

- ▶ Biological Water Quality Objectives. Selected a biological objective metric and framework that can adapt with climate change effects (Triennial Review Projects 2014 and 2018)
- ▶ TMDLs. Models for Santa Margarita River Nutrient TMDLs are considering climate change effects to temperature and flow regimes on numeric targets for eutrophication and biological objectives.

PERMITTING

- ▶ NPDES Program. Climate Change Action Plan to identify potential impacts to San Diego's
- ▶ wastewater collection and treatment system.
- ▶ MS4 Storm Water Design Storm 1993 vs. 2003 rain years
- ▶ Evaluate spent fuel storage options at SONGS.

COMPLIANCE / ENFORCEMENT

- ▶ Site Cleanup Program. Vulnerability of SD Bay sites to sea level rise; green technologies for cleanup activities.

CLIMATE CHANGE READINESS ACTIONS

TIJUANA RIVER-BORDER ISSUES

- ▶ Climate Understanding and River Valley Resilience Plan

FINANCIAL ASSISTANCE

- ▶ Supplemental Environmental Projects. must describe how the proposed project is resilient to climate change.

EDUCATION / OUTREACH

- ▶ Outreach and Communication. Staff participation in community-based climate change workgroups and meetings to gather and share information.
- ▶ Recycled Water WDRs: Updating Basin Plan to facilitate recycled water development and reuse (Triennial Review 2018)

PROCUREMENT

- ▶ Fuel-efficient vehicles



QUESTIONS AND DISCUSSION

Vision: Actions of the San Diego Water Board are preserving, enhancing, and restoring water quality for future generations that will live with the likely effects of climate change

Shoreline erosion

Less reliable imported water

More droughts

Ocean acidification

Increased toxic bioavailability

Intertidal habitat loss

More intense rainstorms

More flooding

More wildfires

Seawater intrusion

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More algal blooms

And more...

So many effects on water quality.

Assess effects on key beneficial uses and areas



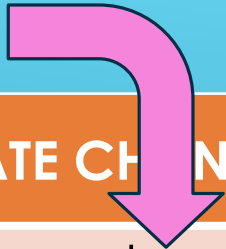
Consider ability to affect outcome



Consider available resources



Identify top goals



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